

		R.A.		N.P.D.	Log. distance from Earth.	Sun.
		h.	m. s.			
Sept.	23	...	23 53 48	...	83 24'3	...
	25	...	52 45	...	83 46'9	...
	27	...	51 46	...	84 10'0	...
	29	...	50 51	...	84 33'3	...
Oct.	1	...	50 2	...	84 56'8	...
	3	...	49 18	...	85 20'5	...
	5	...	48 40	...	85 44'1	...
	7	...	48 9	...	86 7'7	...
	9	...	23 47 46	...	86 31'0	...

It will be seen that the nearest approach of the comet to the earth (1'09) occurs within this period, and the circumstances are as favourable for observation as they can be at this appearance. An observation by M. Pechüle at Copenhagen on September 1 shows that the ephemeris of Prof. Axel-Möller requires only the small correction of $-1'6$ s. in R.A., and $+15''$ in N.P.D. In no case has the motion of a comet of short period been followed with more striking success than that of Faye's comet has been during the thirty-seven years which have elapsed since its discovery, through the masterly investigations of the Swedish astronomer. Nor has he confined himself to following the comet during this interval: he has confirmed in a great degree the inferences drawn by Leverrier with respect to the conditions attending the near approach of the comet to Jupiter, about the time of nodal passage in the year 1816, having previously calculated with precision the effect of an approximation of the two bodies within 0'64 in March, 1841, and assigned accurate elements for December 25, 1838. (See the *Proceedings* of the Academy of Sciences at Stockholm, January, 1873.)

SCHABERLE'S COMET (1880, APRIL 6).—The theoretical brightness of this comet, discovered seven months since, is on the increase, and we subjoin an extract from the ephemeris calculated by M. Bigourdan, from elements founded upon normal places for April 10, 28, and May 16. It is for Paris midnight, and the intensity of light at discovery is taken = 1.

		R.A.		N.P.D.	Log. distance from Earth.	Intensity of light.
		h.	m. s.			
Sept.	28	...	6 39 45	...	76 35'5	...
	30	...	6 37 16	...	77 32'0	...
Oct.	2	...	6 34 35	...	78 30'3	...
	4	...	6 31 42	...	79 30'4	...
	6	...	6 28 38	...	80 32'3	...
	8	...	6 25 20	...	81 35'9	...
	10	...	6 21 50	...	82 41'4	...
	12	...	6 18 6	...	83 48'6	...
	14	...	6 14 9	...	84 57'6	...

The maximum brightness is attained about November 4, near which date the following are the comet's approximate positions:—

12h. G.M.T.		R.A.		N.P.D.	Log. distance from Earth.	Sun.
		h.	m. s.			
Nov.	2	...	5 25 23	...	96 51	...
	6	...	5 12 52	...	99 21	...
	10	...	4 59 53	...	101 46	...
	14	...	4 46 35	...	104 1	...

SWIFT'S NEW COMET.—Mr. Lewis Swift, writing from Rochester, New York, on August 18, gives some particulars of his observation of a cometary object on August 11, and explains the cause of his delay of a week in notifying his discovery. On the 11th he observed a nebulous object elongated in the direction of the sun in the field with and about 1° distant from the small bright nebula H. I. 262, the position of which for 1880 is in R.A. 11h. 20m. 32s., N.P.D. 22° 45'2, and having been familiar with the neighbourhood for many years, he supposed it to be a comet, but could detect no motion before the sky clouded. On the morning of the 17th, the sky being clear after the moon had set, he examined the spot, but the nebulous object was missing, and a search until daylight failed to recover it. He then cabled his discovery and made it known to astronomers in the United States. The position, he says, would not differ much from R.A. 11h. 28m., N.P.D. 22°. The comet was first detected with his comet eyepiece, power 25, and examined with powers 36 and 72; it was faint, but not very faint. We have not heard that it has yet been seen elsewhere. The place given is not upon the track of Pons' comet of 1812, the return of which is shortly expected, and for which it is much to be desired that a strict search should be maintained. Sweeping-ephemerides prepared under Prof.

Winnecke's direction will be found in the *Vierteljahrsschrift der Astronomischen Gesellschaft*, 12. Jahrgang, 2. Heft.

THE BINARY STAR 85 PEGASI.—By five nights' recent measures of the close stars in this system, Mr. Burnham has satisfactorily established their binary character, which had been rendered probable by his earlier measures; the mean result is—

1880'59 ... Position, 298°3 ... Distance, 0'65.

For the distant companion Mr. Burnham finds from six nights' observations—

1880'57 ... Position, 25°0 ... Distance, 15'41.

GEOGRAPHICAL NOTES

THE sixth issue of Behm and Wagner's "Population of the Earth" has just been issued. Since the last issue several censuses have been taken, and the results of these, combined with the natural increase of the population, have added something like seventeen millions to the inhabitants of the globe. The population of the earth is now stated to be 1,455,923,550, as compared with 1439 millions two years ago. Europe has 315,929,000 inhabitants, or 32'5 per square kilometre; Asia, 834,707,000, or 18'7 per sq. kil.; Africa, 205,679,000, or 6'9 per sq. kil.; Australia and Polynesia, 4,031,300, or 0'4 per sq. kil.; and the Polar Regions 82,000, mostly divided between Iceland and Greenland. The *Bevölkerung* is just too soon to be able to utilise the results of the censuses of the United States and of Austria, which are taken this year, and that of our own country will not of course be available for at least two years. The editors have, however, made a very careful calculation of the present population of the States, on the basis of registration and emigration statistics, and find the probable population of the present year to be 48,000,000. The section of the work relating to Roumania and the Balkan Peninsula is specially valuable, and must have cost the editors a vast amount of trouble, considering the untrustworthy and imperfect nature of the data at their command. The areas of these countries, as well as of several other regions on the globe, including Africa, are mainly given from careful planimetric measurements made under the direction of the editors. The area of Roumania is given as 129,947 square kilometres, and the population as 5,376,000; Servia, 48,657 sq. kil., 1,589,650 population; Montenegro (after the Berlin Treaty), 9,475 sq. kil., population 286,000; European Turkey, including the dependencies of East Rumelia, Bulgaria, Bosnia, and Herzegovina, 339,211 sq. kil., population 8,866,500; of Asiatic Turkey the area is given as 1,899,206, and the population 16,320,000. For Afghanistan, the *Bevölkerung* gives the details of the various tribes and populations contributed to NATURE by Mr. Keane in January last. It also gives Mr. Keane's table of the Turkoman tribes (NATURE, vol. xxi. p. 111), which is wrongly attributed to Prof. Vámbéry. The statistics of the Indian Archipelago have cost the editors great trouble, mainly owing to the confused and unsystematic way in which the Batavian Government compile their statistics. There is a very detailed and careful *résumé* of the areas and populations of the various Polynesian island groups. The result reached by the new estimation of the area of Africa in the *Bevölkerung* is 29,283,390 square kilometres, of which about 6½ millions are forest and cultivable land, the same are in prairies and light woods, 1½ million bush, 4½ millions steppe, 10½ millions desert, and 170,000 lakes. A new planimetric measurement of South America made by Dr. Wisotzki gives the area as 17,732,128 square kilometres. The total area of the North Polar lands is given as 1,301,100 square kilometres, and of the South as 666,000.

THE French scientific expedition headed by Prof. d'Ujfalvy, the celebrated French explorer of Central Asia, has arrived at Nijni Novgorod, on its way to Turkestan, to explore Bokhara and the whole of Afghanistan north of the Hindoo Koosh. The expedition will proceed to Tashkend, where it will pass the winter, *via* Siberia, taking the steamer from Nijni Novgorod to Perm, the train thence to Ekaterinburg, the post-road to Turmin, the steamer again to Semipalatensk, and completing the distance to Tashkend by post-road. As soon as possible in the spring the expedition will set out for Samarcand, and, after exploring the antiquities in the Zerafshan district, will cross the border into Bokhara, proceeding thence, at the completion of the exploration of the Khanate, to the Pamir Wakhan, Badakshan, and other little known Afghan possessions in the Hindoo Koosh.

It will depend on the state of affairs in that region whether the expedition afterwards crosses the Hindoo Koosh to Cabul and Candahar, and proceeds to India and China, or whether it takes the road to Peking through Kashgaria and Thibet. Persia and Asia Minor will be touched on the way home, and Prof. d'Ujfalvy hopes to reach Paris by the beginning of 1882. D'Ujfalvy has received a subsidy of 80,000 francs from the French Government, and is accompanied by two salaried officials connected with the Ministry of Public Instruction, Gabriel Bonvalot, a naturalist, and Guillaume Kapius, a doctor of natural science.

THE current number of the Geographical Society's *Proceedings* opens with Sir R. Temple's lecture on the highway from the Indus to Candahar (illustrated by woodcuts from his own sketches), which is most appropriately followed by Capt. Beavan's "Notes on the Country between Candahar and Girishk." The map, which will embody new material, is promised with next number. The other paper is an account by Mr. Coppinger, R.N., of a visit to Skyring Water, Straits of Magellan. In the geographical notes much prominence is naturally given to Mr. Thomson's letters describing the concluding part of his very successful journey in East Africa, the only disaster of which has been the sad death of Mr. Keith Johnston at the very outset. In the letters now before us Mr. Thomson tells us how he vainly—owing to the opposition of his own men—endeavoured to trace the course of the Lukuga Creek from Lake Tanganyika to the Congo, failing in which he returned to his camp at the south of the lake, and then, having examined the previously unseen Lake Hikwa (or Likwa), made the best of his way back to Zanzibar through Unyanembe. Among the other notes we find one on the French expedition from the Senegal to the Niger, under Capt. Gallieni, followed by others on routes between Kurram and Ghazni, Russian Manchuria, Saghalin Island, the Indo-Chinese peninsula, and the affluents of the Rio Purús. Sir J. H. Lefroy's address to the Geographical Section of the British Association is also given, together with a few notes on new books and maps, the whole forming an exceedingly good number for the time of the year.

AFTER spending two years in South Africa, Lieut. Een, a Swedish traveller, has lately returned to Europe, bringing with him valuable collections which he has formed in Damara-land, in the departments of natural history and ethnography.

CAPT. CASATI, an Italian traveller, is going to the Bahr-el-Ghazal, whence he will endeavour to reach Lake Chad through the Niam-Niam country, with the view of thoroughly investigating the interesting problem of the relations between the Rivers Welle and Shari.

M. LOMBARD has gone to Abyssinia on a mission from the French Government, to study the topography of the country, as well as its civil and military organisation.

THE last issue of *Le Globe* contains a paper on "La Topographie comme Base de l'Enseignement géographique," and another by M. Th. Vernet, on South Africa.

THE current number of *Les Missions Catholiques* contains three papers of interest, viz., the conclusion of the narrative of a journey in West Africa, part of the particulars respecting the march of the Algerian Missionary Society's last expeditions to Lake Tanganyika and the Victoria Nyanza, and the first instalment of a paper communicated by the Very Rev. Father Dominique of Aden, on Somali-land, a region which is gradually attracting a good deal of attention at the hands of travellers as well as of missionaries.

THE most noteworthy contributions to the new number of *Les Annales de l'Extrême Orient* are a notice of M. Aymonier's Khmer-French Dictionary, and a vocabulary collected by the well-known Thibetan traveller, Abbé Desgodins, of words in use among several tribes on the Lan-tsang-kiang, or Upper Me-kong, the Lou-tse-kiang, or Upper Salween, and the Upper Irrawaddy.

A TELEGRAM from San Francisco, dated the 1st inst., states that a despatch has been received at that port from Victoria, a district at the northern extremity of America, to the effect that the barque *Malay* has arrived there from Ounalaska, bringing no tidings of the *Jeannette*, the vessel despatched some months ago by the United States Government upon a voyage of Polar discovery. The *Malay* reported that at Ounalaska the *Jeannette* was given up for lost, on account of the severity of last winter. A despatch from Washington, in reference to the above rumour, ridicules the idea that the *Jeannette* has met with a mishap,

inasmuch as she was made as strong as human ingenuity could contrive, and specially equipped and provided for the service on which she was sent. Officers, says the *Herald*, who have had experience of the Arctic seas, say they know of no reason why Lieut. De Long should not be as successful as Nordenskjöld was in his Northern voyage.

THE series of letters from the enterprising correspondent of the *Daily News* in Central Asia are well worthy of attention; they contain many valuable observations both on the country and the people. The Burmese correspondent of the same paper, in a long letter in last Friday's issue, describes a journey into the interior, giving much fresh information on a little known region.

THE FRENCH DEEP-SEA EXPLORATION IN THE BAY OF BISCAY¹

I FEEL that I am indebted for the opportunity of giving an account of the French Expedition which forms the subject of this paper to my esteemed friend and colleague the Marquis de Folin of Bayonne. He was until lately the Commandant of that port, and is a most zealous and excellent naturalist. I may indeed say that the Expedition originated with him. For more than ten years he had at his own expense assiduously and carefully explored the sea-bed lying off Cap Breton, in the Department of the Landes, as well as could be done in a fishing-boat; and the result of his researches among the marine Invertebrata has been described, with illustrations by his pencil, in a useful work called "*Les Fonds de la Mer*," published at Bayonne under his direction. M. de Folin has from time to time sent me the mollusca procured in his dredgings for my opinion; and our correspondence, with a visit which I paid him in December, 1878, led to his making an application to the French Government for the grant of a vessel to explore the depths which were known to exist at a comparatively short distance from the northern coasts of Spain in the Bay of Biscay. This evidently could not be done in a fishing-boat; and naturalists have much less money than science. It was in fact a project for a nation, and not for an individual. The application was, I believe, referred to the Dean of the Academy of Sciences, M. Milne-Edwards, whose reputation as an eminent zoologist has been universally recognised for more than half a century. His report was favourable; and a Government vessel was ordered to be placed at the disposal of a Commission, of which M. Milne-Edwards was appointed president. The other members of the Commission were the Marquis de Folin, Prof. Alphonse Milne-Edwards, Prof. Vaillant, Prof. Marion of Marseilles, Dr. Paul Fischer, and M. Perier of Bordeaux. The selection of these savants augured well for the success of the Expedition, and it has been fully justified. At the suggestion of M. de Folin, the Minister of Public Instruction graciously invited me and the Rev. A. M. Norman (a well-known zoologist) to take part in the expedition. Mr. Norman had been my valued companion for many years past in similar but less important excursions to Shetland and Norway. It was to me a great pleasure to be again associated with him. I regarded the invitation as far more than a compliment: it was a great honour.

I may here mention that immediately before the commencement of the Expedition M. de Folin, Mr. Norman, and I had some preparatory boat-dredging in the Fosse de Cap Breton. This was done at the expense of the French Government. When has our own Government shown such generosity in the cause of science to French naturalists?

The vessel assigned for the purposes of the Expedition was the *Travailleur*, a paddle-wheel steamer of over 900 tons, of 150 horse-power, and carrying four guns. She is an "aviso," or despatch-boat, and is stationed at Rochefort for occasional service. She was supplied with a capital donkey-engine and immense stores of cordage, sounding-wire, and other apparatus. She had a very happy name, being an indefatigable worker. Capt. E. M. F. Richard was the commander, or "Lieutenant de Vaisseau;" and the other officers were Lieutenants Mahieux, Jecquet, Villegente, and Bourget, Aide-Commissaire Gousselin, and Doctor Duploux. Let me now express my sincere thanks to the officers for their great kindness and urbanity. They took a great interest in the work, and materially promoted the welfare of the Expedition. The crew consisted of 128 men; the usual number was between eighty and ninety, but

¹ Paper read at the British Association by J. Gwyn Jeffreys, LL.D., F.R.S.